J. KIRCHHOFFER.
Wheel for Traction-Engines.

No. 212,235. **Patented Feb. 11, 1879.**

Fig: 1.

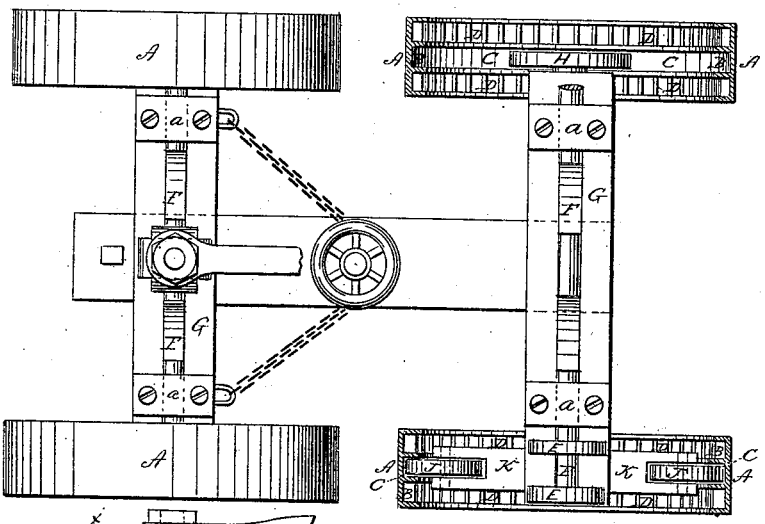


Fig: 2.

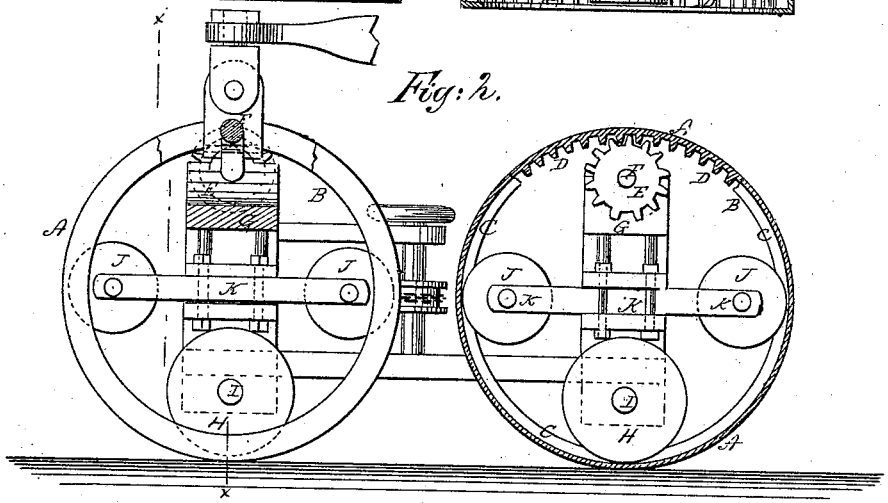
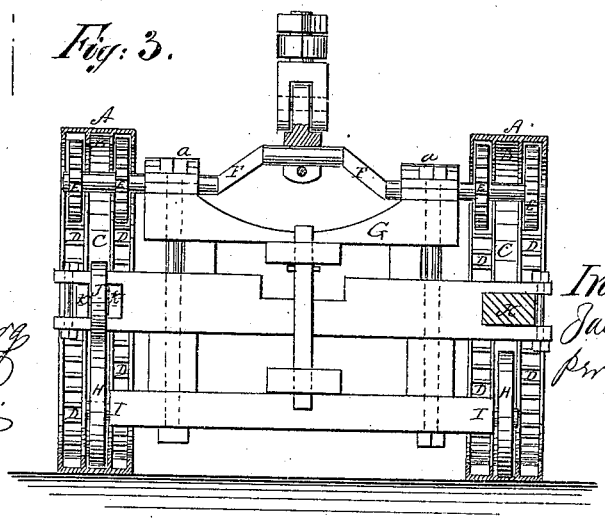


Fig: 3.



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UNITED STATES PATENT OFFICE.

JACOB KIRCHHOFFER, OF WALLA WALLA, WASHINGTON TERRITORY.

IMPROVEMENT IN WHEELS FOR TRACTION-ENGINES.

Specification forming part of Letters Patent No. **212,235**, dated February 11, 1879; application filed November 21, 1878.

To all whom it may concern:

Be it known that I, JACOB KIRCHHOFFER, of Walla Walla, in the county of Walla Walla and Territory of Washington, have invented a new and Improved Traction-Engine Wheel; and that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making part of this specification.

This invention is in the nature of an improvement in wheels for traction-engines; and the invention consists in wheels for traction-engines constructed with a smooth-tired periphery, and with a channel or guideway centrally formed around the inside of the annulus or wheel, and with cogs or gears also within the inside of the annulus, and located on each side of said guideway, in combination with driving-pinions, which mesh into the aforesaid gears, and a friction-wheel, with its periphery within the guideway and supporting the traction-engine, and two friction-wheels at right angles to the axle of the supporting friction-wheel, substantially as is hereinafter shown and described.

In the accompanying sheet of drawings, Figure 1 is a plan or top view of traction-engine with my wheels partly in section; Fig. 2, a longitudinal section of same; and Fig. 3, a vertical section through line *x x*, Fig. 2.

Similar letters of reference indicate like parts in the several figures.

By this invention it is believed that a greater degree of speed with a less expenditure of power can be had for the purpose of propelling a traction-engine on common roads than has heretofore been obtained.

To that end I construct the wheels of my traction-engine with a periphery, A, without gears, and tired, in the usual manner. Within the annulus B of the wheel, and extending entirely around it, is constructed a guideway, C, centrally placed. On each side of this guideway are placed cogs or gears D, which cogs also extend continuously around the inner annulus of the wheel, as shown in Figs. 1 and 3. Meshing into the gears D, one in each side of the guideway C, are two geared pinions, E. These pinions are rigidly fixed to the end of a driving-shaft, F, the shaft being supported in suitable bearings *a*, formed in the supporting-frame or bed-plate G of the engine, the shaft being properly connected by any suitable mechanism with the engine whereby it may be caused to revolve.

Diametrically opposite the geared pinions E, and beneath the bed-plate or supporting-frame G of the engine, is a friction-wheel, H, the lower part of the periphery of this friction-wheel being received within the guideway C. This friction-wheel is secured to an axle, I, upon which axle it freely revolves. Above the friction-wheel H, and at right angles to its supporting-axle, are fitted two friction-wheels, J. These last-mentioned friction-wheels are supported at the extremities of an arm, K, so that they may revolve freely on their axle in bearings formed in said arm, and the peripheries of the friction-wheels J are partly received within the guideway C.

Now, the wheels of my traction-engine, constructed substantially as I have described, are operated as follows: Power being applied through a steam-engine to the shaft F in any suitable manner, this shaft revolves, and with it the pinions E, and as these pinions turn, by reason of their meshing into the gears D, the wheels or wheel of the engine is compelled to turn and propel the engine and its load. As the wheels in this way revolve, the friction-wheel H, which bears the weight of the engine, revolves freely on its axle I, as do also the friction-wheels J, the three friction-wheels traveling freely within the guideway C as the wheels revolve, the friction-wheel H, as before stated, supporting the engine and its frame, and the friction-wheels J acting as guides within the guideway to keep the wheel steady and in place.

Four wheels may be employed to support my engine, as shown in Fig. 1, or three, or one centrally placed, if desired, and as may best suit the purpose for which the engine is designed.

To keep out sand and dirt, the sides of the wheels of the engine may be inclosed.

I am aware of the patent granted to John

T. Brooks, October 23, 1877, No. 196,331, for endless-track wheel, and I do not claim anything therein described and shown; but,

Having now described my invention, what I do claim as new, and desire to secure by Letters Patent, is—

A wheel for a traction-engine constructed with a guideway, C, centrally formed within and around the inner annulus of the wheel, and with gears D D on each side of said guideway within and also around the inner annulus of the wheel, in combination with geared pinions E E, meshing into said gears and fixed to the driving-shaft F of the engine, and with friction-wheels H J J, fitting into said guideway, whereby the engine is supported and the wheel steadied and driven, substantially as and for the purpose described.

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Witnesses:

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